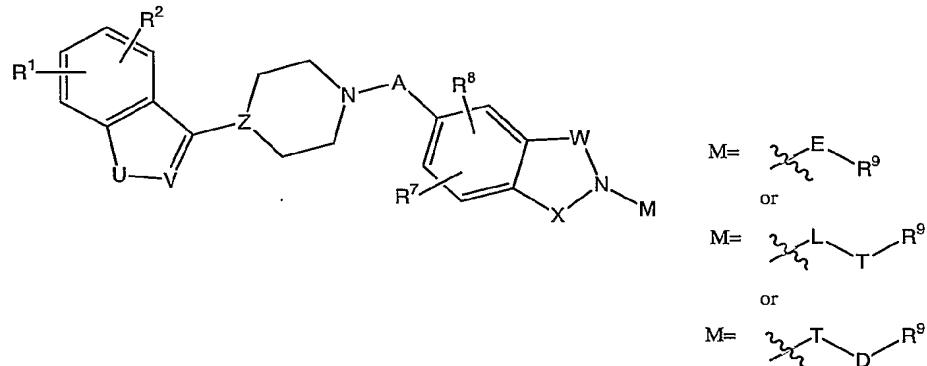


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CLAIMS

1. A compound of formula 1



5

wherein

U is sulfur, oxygen, SO, SO₂, CH₂ or NR³;

V is nitrogen or carbon;

Z is nitrogen or carbon;

10 A is -(CH₂)_mO-; -(CH₂)_mNR⁴-; or -(CH₂)_mC(R⁵R⁶)-, wherein R⁵ and R⁶ are independently selected from hydrogen, (C₁-C₄) alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₄) alkoxy optionally substituted with from one to three fluorine atoms, hydroxy, and aminoalkyl; or R⁵ and R⁶ together form a carbonyl, and wherein m is an integer from one to four;

15 R¹ and R² are independently selected from hydrogen, (C₁-C₄) alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₄) alkoxy optionally substituted with from one to three fluorine atoms, halogen, nitro, cyano, amino, (C₁-C₄) alkylamino and di-(C₁-C₄) alkylamino;

20 R³ and R⁴ are independently selected from hydrogen, (C₁-C₄) alkyl optionally substituted with from one to three fluorine atoms and (C₁-C₄) alkoxy optionally substituted with from one to three fluorine atoms;

or, when U is NR³, one of R¹ and R² can form, together with the carbon to which it is attached, and together with R³ and the nitrogen to which it is attached, a heterocyclic ring containing from four to seven ring members of which from one to three ring members can be heteroatoms selected from nitrogen, oxygen and sulfur,

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and of which the remaining ring members are carbon, with the proviso that when R³ forms a ring with one of R¹ and R², the other of R¹ and R² is absent.

X is -[C(R¹¹)(R¹²)]_o-, wherein R¹¹ and R¹² are independently selected from hydrogen and (C₁-C₄) alkyl optionally substituted with from one to three fluorine atoms, and wherein o is an integer from zero to three, with the proviso that when W is absent, o must be greater than or equal to two;

5 W is -[C(R¹³)(R¹⁴)]_p-, wherein R¹³ and R¹⁴ are independently selected from hydrogen and (C₁-C₄) alkyl optionally substituted with from one to three fluorine atoms, and wherein p is an integer from zero to four, with the proviso that when X is 10 absent, p is greater than or equal to two;

R⁷ and R⁸ are independently selected from halo, R¹ and -OR¹; or R⁷, when attached to a carbon adjacent to one of the carbon atoms shared by both the phenyl ring to which R⁷ is attached and the ring containing W, N and X, forms, together with a carbon atom of X or a carbon atom of W, a saturated carbocyclic ring containing 15 from three to six carbon atoms;

R⁹ is selected from phenyl, phenoxy, benzyloxy, and phenylamino, wherein the phenyl moieties of said phenyl, phenoxy, benzyloxy, and phenylamino are optionally substituted with from one to three substituents independently selected from halo, (C₁-C₃) alkyl optionally substituted with from one to three fluorine atoms, 20 (C₁-C₃) alkoxy optionally substituted with from one to three fluorine atoms, nitro, cyano, amino, and (C₁-C₃) alkylamino; or

25 R⁹ is a pyrrolidine, piperidine or morpholine ring wherein the point of attachment to D, T or E is the ring nitrogen, and wherein said pyrrolidine, piperidine or morpholine ring can be optionally substituted with one or two substituents independently selected from methyl, amino, (C₁-C₄) alkylamino, and di-(C₁-C₄) alkylamino; or

R⁹ is a furan, thiophene, or pyrazole ring optionally substituted with one or two (C₁-C₄) alkyl groups; or

30 R⁹ is (C₁-C₆) straight or branched alkyl or (C₃-C₆) cycloalkyl, wherein said straight, branched and cyclic alkyl moieties are be optionally substituted with from one to three halo atoms or (C₁-C₄) alkoxy optionally substituted with from one to three fluorine atoms; or

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R⁹ is halogen, nitro, cyano, amino, (C₁-C₄) alkylamino, di-(C₁-C₄) alkylamino or OR¹, wherein the alkyl moieties of (C₁-C₄) alkylamino and di-(C₁-C₄) alkylamino are optionally substituted with an amino, (C₁-C₄) alkylamino, or di-(C₁-C₄) alkylamino group;

5 E is -C(O)-, -S(O)- or -SO₂-;
T is -C(O)- or -CO₂-;
L is -(CH₂)_n wherein n is an integer from zero to three;
D is -(CHR¹⁰)_q-, wherein q is an integer from one to three, or NR¹⁰;
R¹⁰ is hydrogen or straight or branched (C₁-C₃) alkyl;
10 and pharmaceutically acceptable salts thereof.

2. The compound according to claim 1 wherein U is sulfur.

3. The compound according to claim 1 wherein V is nitrogen.

15 4. The compound according to claim 1 wherein Z is nitrogen.

5. The compound according to claim 1 wherein A is -(CH₂)_mC(R⁵R⁶)-, wherein R⁵ and R⁶ are hydrogen and m is one or two.

20 6. The compound according to claim 1 wherein X is absent.

7. The compound according to claim 1 wherein W is -[C(R¹³)(R¹⁴)]_p-, wherein R¹³ and R¹⁴ are independently selected from hydrogen and (C₁-C₄) alkyl and p is an integer from two to four.

25 8. The compound according to claim 1 wherein E is -C(O)- and R⁹ is (C₁-C₄)alkyl.

30 9. The compound according to claim 1 which is selected from the group consisting of
1-{5-[2-(4-Benzo[d]isothiazol-3-yl-piperazin-1-yl)-ethyl]-6-chloro-2,3-dihydro-indol-1-yl}-ethanone;

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1-{5-[2-(4-Benzo[d]isothiazol-3-yl-piperazin-1-yl)-ethyl]-3,3-dimethyl-2,3-dihydro-indol-1-yl}-ethanone;
1-{7-[2-(4-Benzo[d]isothiazol-3-yl-piperazin-1-yl)-ethyl]-2,3,4,5-tetrahydro-benzo[b]azepin-1-yl}-ethanone;
5 1-{6-[2-(4-Benzo[d]isothiazol-3-yl-piperazin-1-yl)-ethyl]-4,4,8-trimethyl-3,4-dihydro-2H-quinolin-1-yl}-ethanone;
10 1-{5-[3-(4-Benzo[d]isothiazol-3-yl-piperazin-1-yl)-propyl]-6-chloro-2,3-dihydro-indol-1-yl}-ethanone;
1-(5-{2-[4-(6-Fluoro-benzo[d]isothiazol-3-yl)-piperazin-1-yl]-ethyl}-2,3-dihydro-indol-1-yl)-ethanone; and
15 1-{5-[2-(4-Benzo[d]isothiazol-3-yl-piperazin-1-yl)-ethyl]-4-chloro-2,3-dihydro-indol-1-yl}-ethanone.

10. A pharmaceutical composition comprising a compound according to claim 1
15 and a pharmaceutically acceptable carrier.

11. A method for treating a disorder or condition selected from single episodic or recurrent major depressive disorders, dysthymic disorders, depressive neurosis and neurotic depression, melancholic depression including anorexia, weight loss, 20 insomnia, early morning waking or psychomotor retardation; atypical depression or reactive depression including increased appetite, hypersomnia, psychomotor agitation or irritability, seasonal affective disorder and pediatric depression; bipolar disorders or manic depression, for example, bipolar I disorder, bipolar II disorder and cyclothymic disorder; conduct disorder; disruptive behavior disorder; behavioral 25 disturbances associated with mental retardation, autistic disorder, and conduct disorder; anxiety disorders such as panic disorder with or without agoraphobia, agoraphobia without history of panic disorder, specific phobias, for example, specific animal phobias, social anxiety, social phobia, obsessive-compulsive disorder, stress disorders including post-traumatic stress disorder and acute stress disorder, and 30 generalized anxiety disorders; borderline personality disorder; schizophrenia and other psychotic disorders, for example, schizophreniform disorders, schizoaffective disorders, delusional disorders, brief psychotic disorders, shared psychotic disorders, psychotic disorders with delusions or hallucinations, psychotic episodes of

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anxiety, anxiety associated with psychosis, psychotic mood disorders such as severe major depressive disorder; mood disorders associated with psychotic disorders such as acute mania and depression associated with bipolar disorder; mood disorders associated with schizophrenia; delirium, dementia, and amnestic and other cognitive 5 or neurodegenerative disorders, such as Parkinson's disease, Huntington's disease, Alzheimer's disease, senile dementia, dementia of the Alzheimer's type, memory disorder, vascular dementia, and other dementias, for example, due to HIV disease, head trauma, Parkinson's disease, Huntington's disease, Pick's disease, Creutzfeldt-Jakob disease, or due to multiple aetiologies; movement disorders such as 10 akinesias, dyskinesias, including familial paroxysmal dyskinesias, spasticities, Tourette's syndrome, Scott syndrome, PALSYS and akinetic-rigid syndrome; extra-pyramidal movement disorders such as medication-induced movement disorders, for example, neuroleptic-induced Parkinsonism, neuroleptic malignant syndrome, neuroleptic-induced acute dystonia, neuroleptic-induced acute akathisia, neuroleptic- 15 induced tardive dyskinesia and medication-induced postural tremour; chemical dependencies and addictions and behavioral addictions such as an addiction to gambling; and ocular disorders such as glaucoma and ischemic retinopathy in a mammal, comprising administering to the mammal in need of such treatment an amount of a compound according to claim 1 that is effective in treating such disorder 20 or condition.

12. The method according to claim 11, wherein the disorder or condition is selected from major depression, single episode depression, recurrent depression, child abuse induced depression, postpartum depression, dysthymia, cyclothymia and bipolar disorder. 25

13. The method according to claim 11, wherein the disorder or condition is selected from schizophrenia, schizoaffective disorder, delusional disorder, substance-induced psychotic disorder, brief psychotic disorder, shared psychotic disorder, psychotic disorder due to a general medical condition, and schizopreniform disorder. 30

14. The method according to claim 11, wherein the disorder or condition is selected from generalized anxiety disorder, panic disorder, obsessive-compulsive disorder,

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post-traumatic stress disorder, and phobias, including social phobia, agoraphobia, and specific phobias.

15. A method of treating a disorder or condition selected from single episodic or
5 recurrent major depressive disorders, dysthymic disorders, depressive neurosis and
neurotic depression, melancholic depression including anorexia, weight loss,
insomnia, early morning waking or psychomotor retardation; atypical depression or
reactive depression including increased appetite, hypersomnia, psychomotor
10 agitation or irritability, seasonal affective disorder and pediatric depression; bipolar
disorders or manic depression, for example, bipolar I disorder, bipolar II disorder and
cyclothymic disorder; conduct disorder; disruptive behavior disorder; behavioral
disturbances associated with mental retardation, autistic disorder, and conduct
disorder; anxiety disorders such as panic disorder with or without agoraphobia,
15 agoraphobia without history of panic disorder, specific phobias, for example, specific
animal phobias, social anxiety, social phobia, obsessive-compulsive disorder, stress
disorders including post-traumatic stress disorder and acute stress disorder, and
generalized anxiety disorders; borderline personality disorder; schizophrenia and
other psychotic disorders, for example, schizophreniform disorders, schizoaffective
20 disorders, delusional disorders, brief psychotic disorders, shared psychotic
disorders, psychotic disorders with delusions or hallucinations, psychotic episodes of
anxiety, anxiety associated with psychosis, psychotic mood disorders such as severe
major depressive disorder; mood disorders associated with psychotic disorders such
as acute mania and depression associated with bipolar disorder; mood disorders
25 associated with schizophrenia; delirium, dementia, and amnesia and other cognitive
or neurodegenerative disorders, such as Parkinson's disease, Huntington's disease,
Alzheimer's disease, senile dementia, dementia of the Alzheimer's type, memory
disorder, vascular dementia, and other dementias, for example, due to HIV disease,
head trauma, Parkinson's disease, Huntington's disease, Pick's disease, Creutzfeldt-
30 Jakob disease, or due to multiple aetiologies; movement disorders such as
akinesias, dyskinesias, including familial paroxysmal dyskinesias, spasticities,
Tourette's syndrome, Scott syndrome, PALSYS and akinetic-rigid syndrome; extra-
pyramidal movement disorders such as medication-induced movement disorders, for
example, neuroleptic-induced Parkinsonism, neuroleptic malignant syndrome,

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neuroleptic-induced acute dystonia, neuroleptic-induced acute akathisia, neuroleptic-induced tardive dyskinesia and medication-induced postural tremour; chemical dependencies and addictions and behavioral addictions such as an addiction to gambling; and ocular disorders such as glaucoma and ischemic retinopathy in a

5 mammal comprising administering to the mammal:

(a) a compound according to claim 1; and

(b) another pharmaceutically active compound that is an antidepressant or an anti-anxiety agent, or a pharmaceutically acceptable salt thereof;

wherein the active agents "a" and "b" are present in amounts that render the

10 combination effective in treating such disorder or condition.

INTERNATIONAL SEARCH REPORT

WO 2005/066165

PCT/IPCT/IB2004/004239

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7	C07D417/14	C07D413/14	C07D403/14	C07D409/14	A61P25/18
	A61K31/404	A61K31/423	A61K31/428	A61K31/454	A61K31/4709
	A61K31/55				

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07D A61P A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, BIOSIS, EMBASE, BEILSTEIN Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>STRUPCZEWSKI J T ET AL: "3-(ARYLOXY)ALKYLPIPERIDINYL-1,2-BENZISOXA ZOLES AS D2/5-HT2 ANTAGONISTS WITH POTENTIAL ATYPICAL ANTISSCHIZOPHRENIC ACTIVITY: ANTISSCHIZOPHRENIC PROFILE OF ILOPERIDONE (HP 873)" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 38, no. 7, 1995, pages 1119-1131, XP000941571 ISSN: 0022-2623 scheme 1 page 145, last paragraph - page 146, left-hand column; figure 1; tables 1,2</p> <p style="text-align: center;">----- -/-</p>	1-15

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- °A° document defining the general state of the art which is not considered to be of particular relevance
- °E° earlier document but published on or after the international filing date
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- °O° document referring to an oral disclosure, use, exhibition or other means
- °P° document published prior to the international filing date but later than the priority date claimed

- °T° later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- °X° document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- °Y° document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- °&° document member of the same patent family

Date of the actual completion of the international search

4 April 2005

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